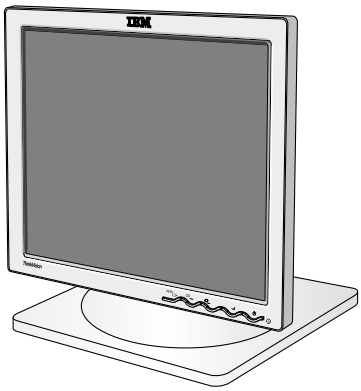
MODEL: L180p(9180-HB9)

COLOR MONITOR
SERVICE MANUAL

Chassis No. : CL-42



CAUTION
BEFORE SERVICING THE UNIT,
READ THE **SAFETY PRECAUTIONS**
IN THIS MANUAL.

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT SXGA LCD
Size	: 18.1inch(459.74mm)
Pixel Pitch	: 0.2805(H) x 0.2805(V)
Color Depth	: 8-bit, 16,777,216 colors
Electrical Interface	: LVDS
Surface Treatment	: Anti-Glare, Hard Coating (3H)
Operating Mode	: Normally Black
Backlight Unit	: Six-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10

Left : -60° min., -85°(typ)
Right : +60° min., +85°(typ)
Top : +60° min., +85°(typ)
Bottom : -60° min., -85°(typ)

2-2. Luminance : 200(min), 250(typ)

2-3. Contrast Ratio : 250(min), 400(typ)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

• Type : Separate, Composite, SOG (Sync On Green) Digital

3-2. Video Input Signal

1) Type	: R, G, B Analog
2) Voltage Level	: 0~0.71 V
a) Color 0, 0	: 0 Vp-p
b) Color 7, 0	: 0.467 Vp-p
c) Color 15, 0	: 0.714 Vp-p
3) Input Impedance	: 75 Ω

3-3. Operating Frequency

Analog

Horizontal	: 31 ~ 81kHz
Vertical	: 55 ~ 75Hz

Digital

Horizontal	: 31 ~ 68kHz
Vertical	: 55 ~ 75Hz

4. POWER SUPPLY

4-1. Power Adaptor

Input : AC 90~240V, 50/60 ±3Hz , 1.0A

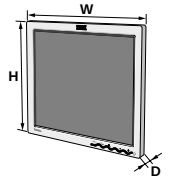
4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (MAX)	ON/ON	ACTIVE	less than 55 W	GREEN
ACITIVE OFF	OFF/OFF	OFF	less than 3 W	AMBER
POWER OFF	-	-	less than 3 W	OFF

5. ENVIRONMENT

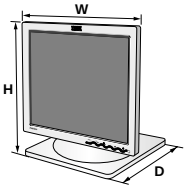
5-1. Operating Temperature:	10°C~35°C (50°F~95°F) (Ambient)
5-2. Relative Humidity	: 10%~80% (Non-condensing)
5-3. MTBF	: 50,000 Hours(Min)

6. DIMENSIONS



Without Tilt/Swivel

Width	: 396.0 mm (15.59")
Depth	: 71.1 mm (2.79")
Height	: 330.5 mm (13.01")



With Tilt/Swivel

Width	: 396.0 mm (15.59")
Depth	: 259.0 mm (10.19")
Height	: 349.7 mm (13.7")

7. WEIGHT

Without Stand	: 5.3kg (11.69 lbs)
With Stand	: 7.7kg (16.98 lbs)

PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. ***These parts are marked ⚠on the schematic diagram and the replacement parts list.*** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from IBM or you will void the original parts and labor guarantee.

TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

⚠ CAUTION

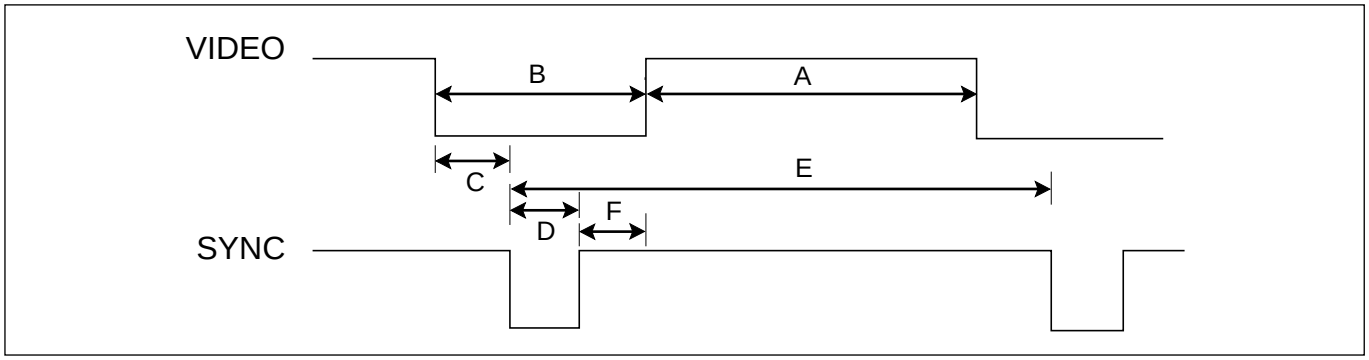
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ WARNING

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

TIMING CHART

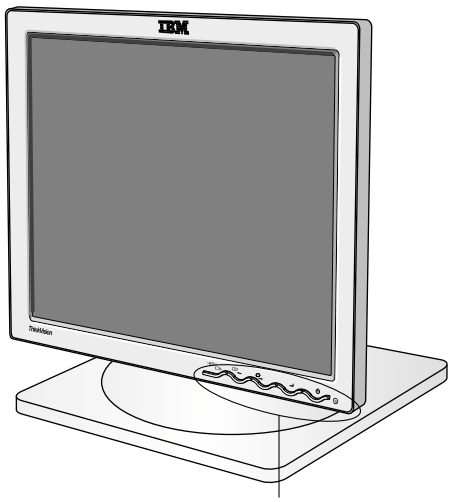


<< Dot Clock **(MHz),** Horizontal Frequency **(kHz)**, Vertical Frequency **(Hz)**, Horizontal etc... **(µs)**, Vertical etc... **(ms) >>**

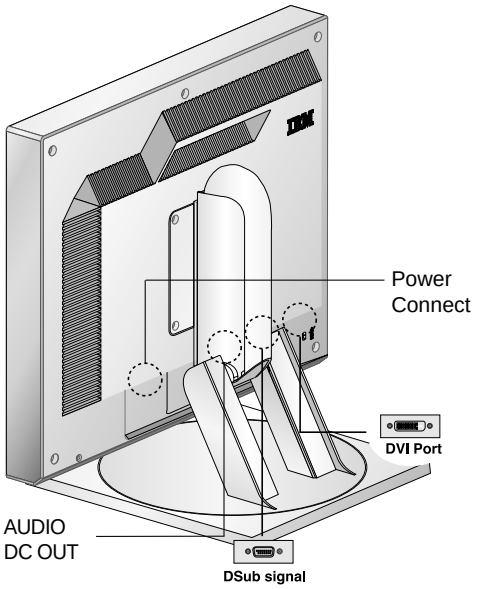
Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Front Porch (C)	Sync Duration (D)	Back Porch (F)	Resolution
1	H	+	25.175	31.469	800	640	16	96	48	**640x350 70Hz**
	V	–		70.09	449	350	37	2	60	
2	H	–	28.321	31.468	900	720	18	108	54	**720x400 70Hz**
	V	+		70.08	449	400	12	2	35	
3	H	–	25.175	31.469	800	640	16	96	48	**640x480 60Hz**
	V	–		59.94	525	480	10	2	33	
4	H	–	31.5	37.5	840	640	16	64	120	**640x480 75Hz**
	V	–		75	500	480	1	3	16	
5	H	+	40.0	37.879	1056	800	40	128	88	**800x600 60Hz**
	V	+		60.317	628	600	1	4	23	
6	H	+	49.5	46.875	1056	800	16	80	160	**800x600 75Hz**
	V	+		75.0	625	600	1	3	21	
7	H	+/–	57.283	49.725	1152	832	32	64	224	**832x624 75Hz**
	V	+/–		74.55	667	624	1	3	39	
8	H	–	65.0	48.363	1344	1024	24	136	160	**1024x768 60Hz**
	V	–		60.0	806	768	3	6	29	
9	H	–	78.75	60.123	1312	1024	16	96	176	**1024x768 75Hz**
	V	–		75.029	800	768	1	3	28	
10	H	+/–	100.0	68.681	1456	1152	64	128	144	**1152x870 75Hz**
	V	+/–		75.062	915	870	1	3	39	
11	H	+/–	92.978	61.805	1504	1152	18	134	200	**1152x900 65Hz**
	V	+/–		65.96	937	900	2	4	31	
12	H	+	108.0	63.981	1688	1280	48	112	248	**1280x1024 60Hz**
	V	+		60.02	1066	1024	1	3	38	
13	H	+	135.0	79.976	1688	1280	16	144	248	**1280x1024 75Hz**
	V	+		75.035	1066	1024	1	3	38	

OPERATING INSTRUCTIONS

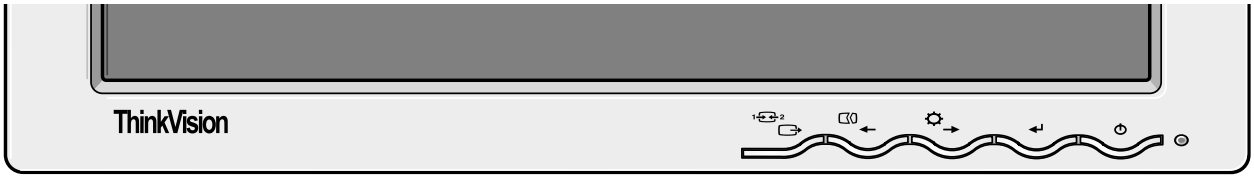
FRONT VIEW



REAR VIEW



Front Control Panel

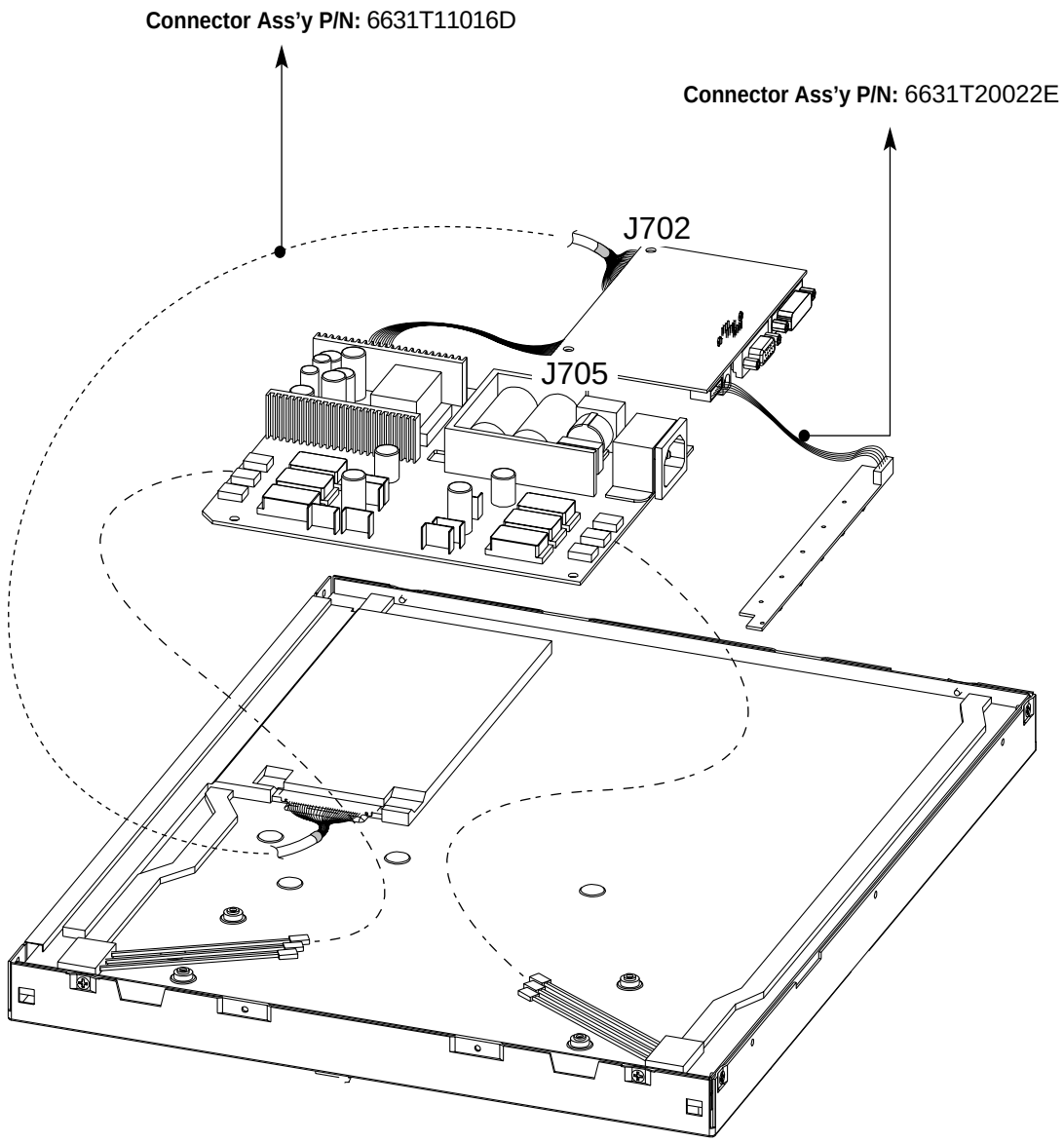


USER CONTROL FEATURES

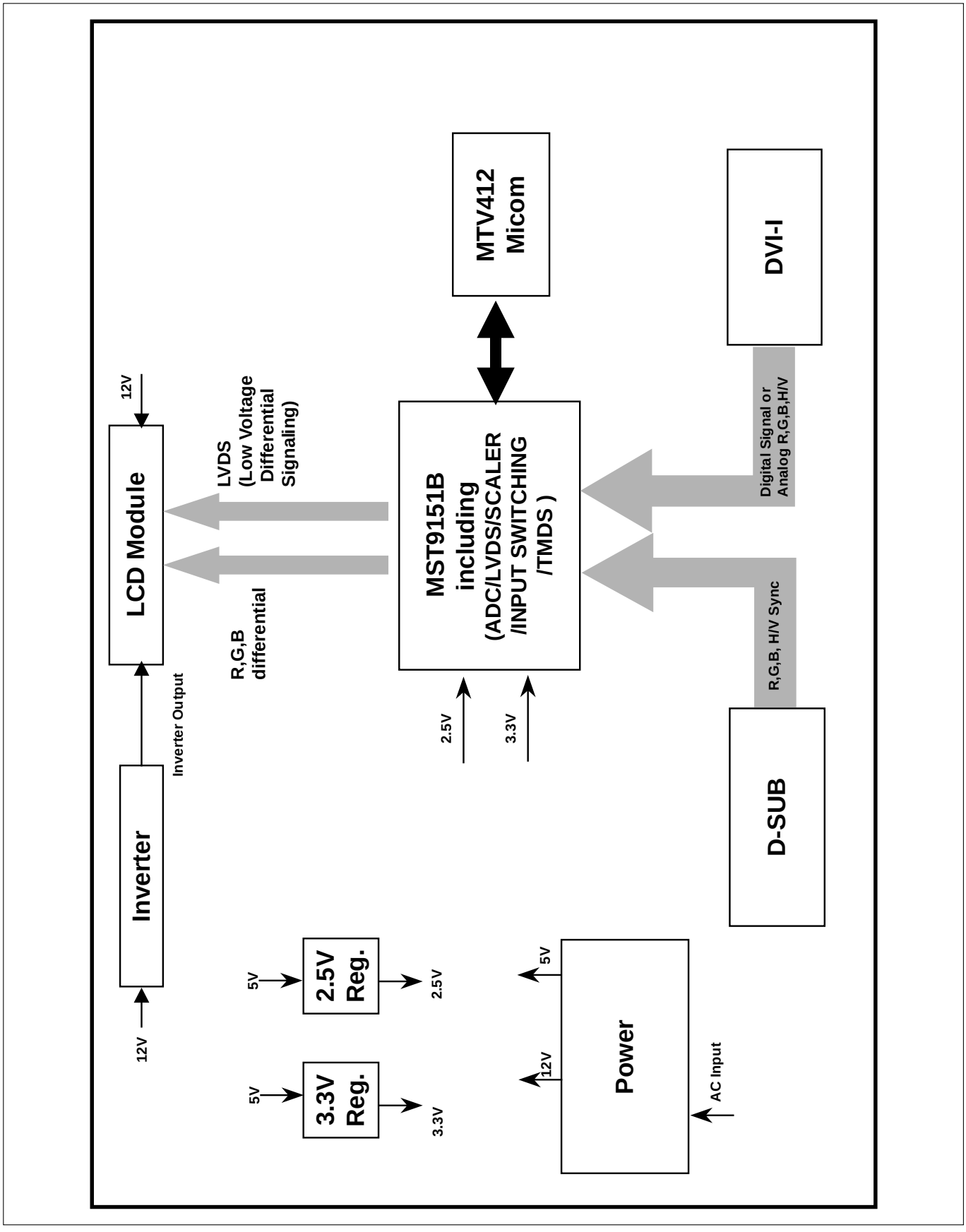
Icon	Monitor controls
⏻	Switches the monitors on and off.
↵	Display main OSD menu and selects highlighted menu item.
← and →	Moved the cursor to highlight icons or make adjustments.
⮕	Exits from current OSD menu.

Icon	Direct Access Functions
☼ →	Bring up Brightness adjustment.
◁◁ ←	Executes automatic image setup.
	CONTROLS LOCK / UNLOCK This feature allows you to secure the current control settings, while allowing the user to adjust Brightness, so that they cannot be inadvertently changed. Push and hold the enter button[↵] for 10 seconds; the message “Menu is Locked” appears. You can unlock the OSD controls at any time by pushing the enter button[↵] for 10 seconds; the message “Menu is Unlocked” will appear.
1 → ← 2 ⮕	Switch between input signals.

WIRING DIAGRAM



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Video Controller Part & Display Data Transmitter Part.(MST9151B)

This part amplifies the level of video signal for the digital conversion and
converts from the analog video signal to the digital video signal using a pixel clock.
The pixel clock for each mode is generated by the PLL.
The range of the pixel clock is from 25MHz to 135MHz.
This part consists of the Scaler.
The Scaler gets the video signal converted analog to digital,
interpolates input to 1280 x 1024 resolution signal and outputs 8-bit R, G, B signal to transmitter.
Especially pre-amp / ADC / Video controller/ Transmitter are merged to one chip"MST9151B" by MSTAR.
This part transmit digital signal from the Scaler to the receiver of module.

2. Micom Part

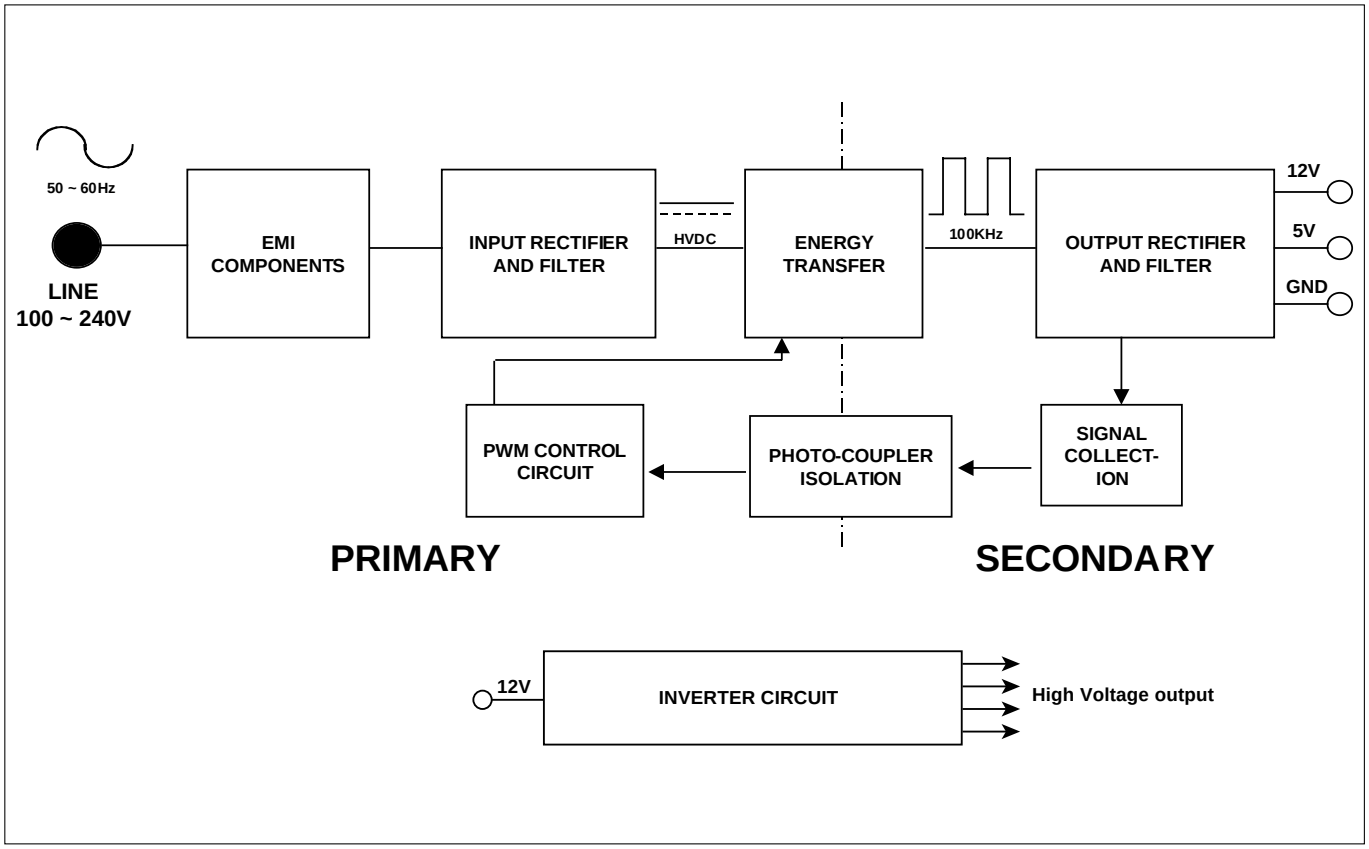
This Part consists of EEPROM IC which stores control data, Reset IC and the Micom.
The Micom distinguishes polarity and frequency of the H/V Sync are supplied from signal cable.
The controlled data of each modes is stored in EEPROM.

3. Power Part

This part consists of the one 3.3V and one 2.5 regulators to convert power which is provided 5V in LIPS Board.
Also, 5V is converted 3.3V and 2.5V by regulator. Converted power is provided for Scaler IC in the main board.
12V is provided for LCD Panel.

4. Inverter

The inverter converts from DC12V to AC 700Vrms and operates back-light lamps of module.



Operation description_Power

1. EMI components.

This part contains of EMI components to comply with global marketing EMI standards like FCC, VCCI CISPR, the circuit included a line-filter, across line capacitor and of course the primary protection fuse.

2. Input rectifier and filter.

This part function is for transfer the input AC voltage to a DC voltage through a bridge rectifier and a bulk capacitor.

3. Energy Transfer.

This part function is transfer the primary energy to secondary through a power transformer.

4. Output rectifier and filter.

This part function is to make a pulse width modulation control and to provide the driver signal to power switch, to adjust the duty cycle during different AC input and output loading condition to achive the dc output stablize, and also the over power protection is also monitor by this part.

5. Photo-Coupler isolation.

This part function is to feed back the dc output changing status through a photo transistor to primary controller to achieve the stabilized dc output voltage.

6. Signal collection.

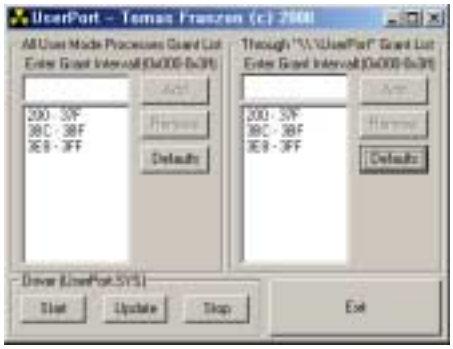
This part function is to collect the any change from the dc output and feed back to the primary through photo transistor

ADJUSTMENT

Windows EDID V1.0 User Manual

Operating System: MS Windows 98, 2000, XP
Port Setup: Windows 98 => Don't need setup
Windows 2000, XP => Need to Port Setup.
This program is available to LCD Monitor only.

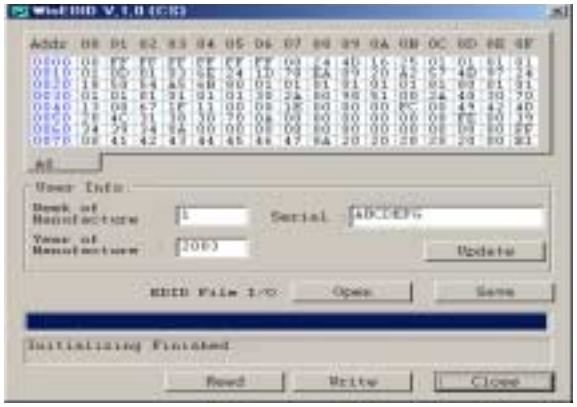
1. Port Setup
   a) Copy "UserPort.sys" file to "c:\WINNT\system32\drivers" folder
   b) Run Userport.exe



   c) Remove all default number
   d) Add 300-3FF

   e) Click Start button.
   f) Click Exit button.

2. EDID Read & Write
   1) Run WinEDID.exe



   2) Edit Week of Manufacture, Year of Manufacture, Serial Number
      a) Input User Info Data
      b) Click "Update" button
      c) Click " Write" button

SERVICE OSD

1) Turn off the power switch at the front side of the display.

2) Wait for about 3 seconds and press Source POWER switch with 1 second interval.

3) The SVC OSD menu contains additional menus that the User OSD menu as described below.

a) NVRAM INIT : EEPROM initialize(24C08)
b) ADC OFFSET : The lowest value of input leves sets to digitally 0(zero).
c) ADC GAIN : The highest value of input levels sets to digitally 255.
d) ADC CAL : W/B balance sets the gain and offset value.
e) ELAPSED CLEAR : To initialize using time.
f) AGING : To select factory aging mode.
g) ELAPSED TIME : ## Hr => Display the monitor's elapsed time.

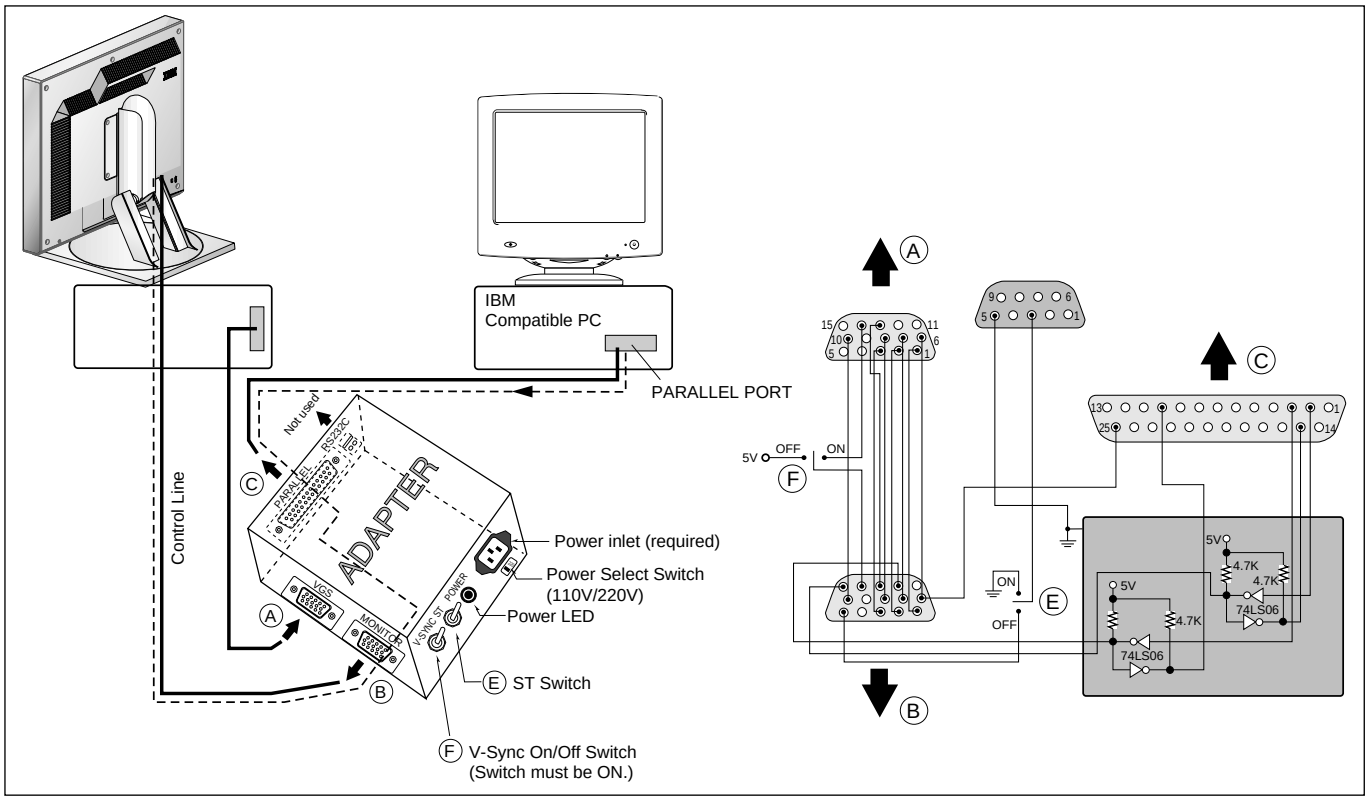
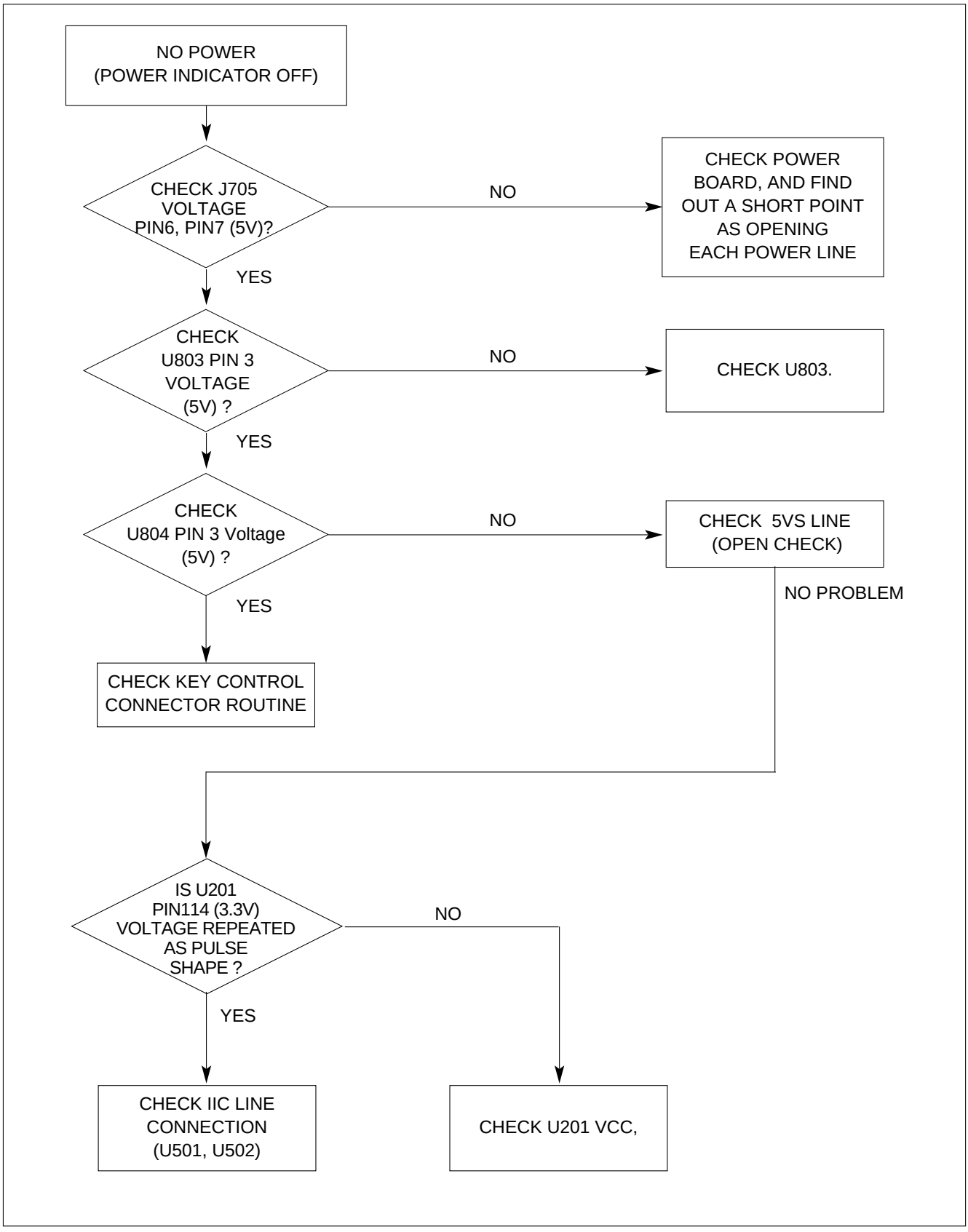


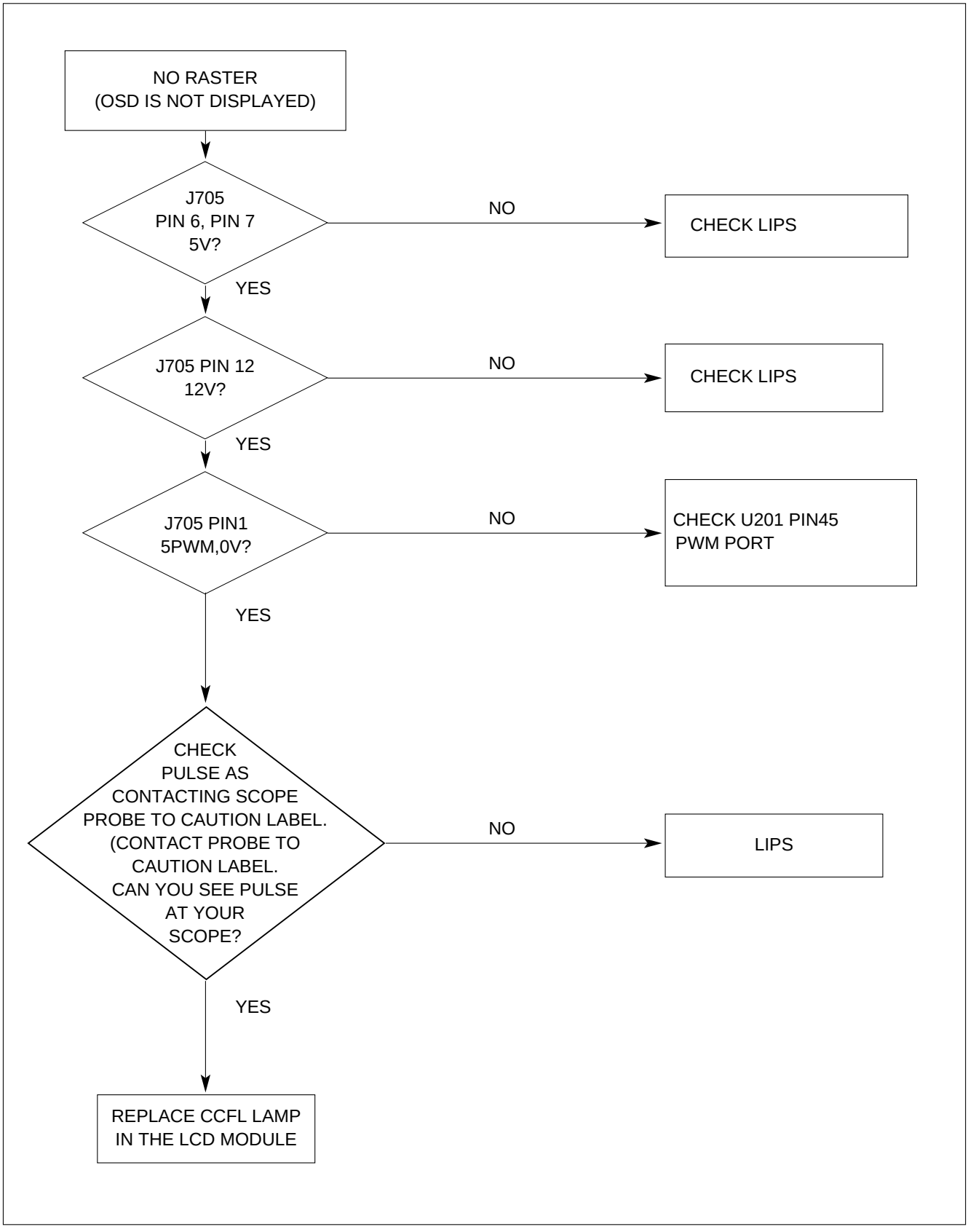
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

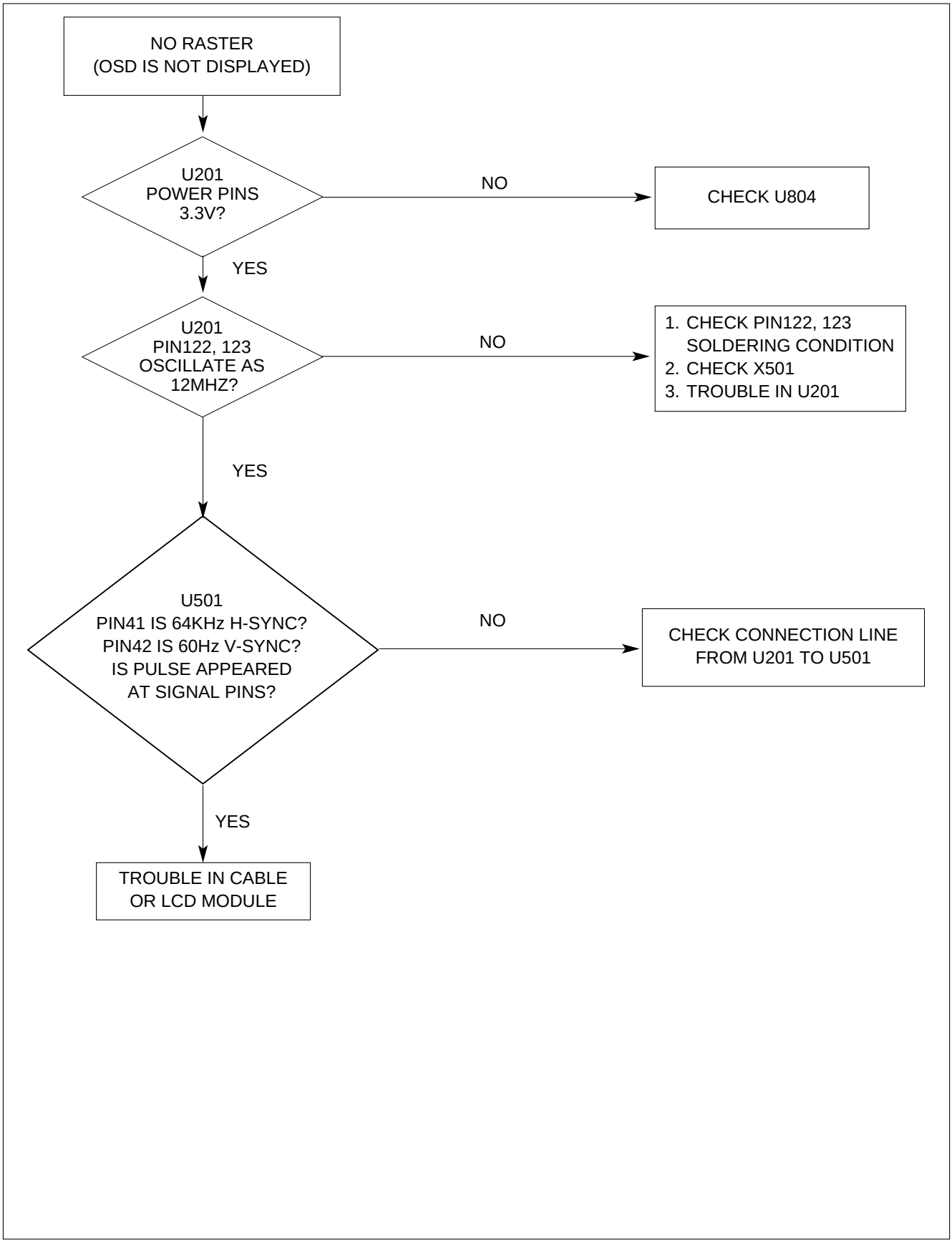
1. NO POWER



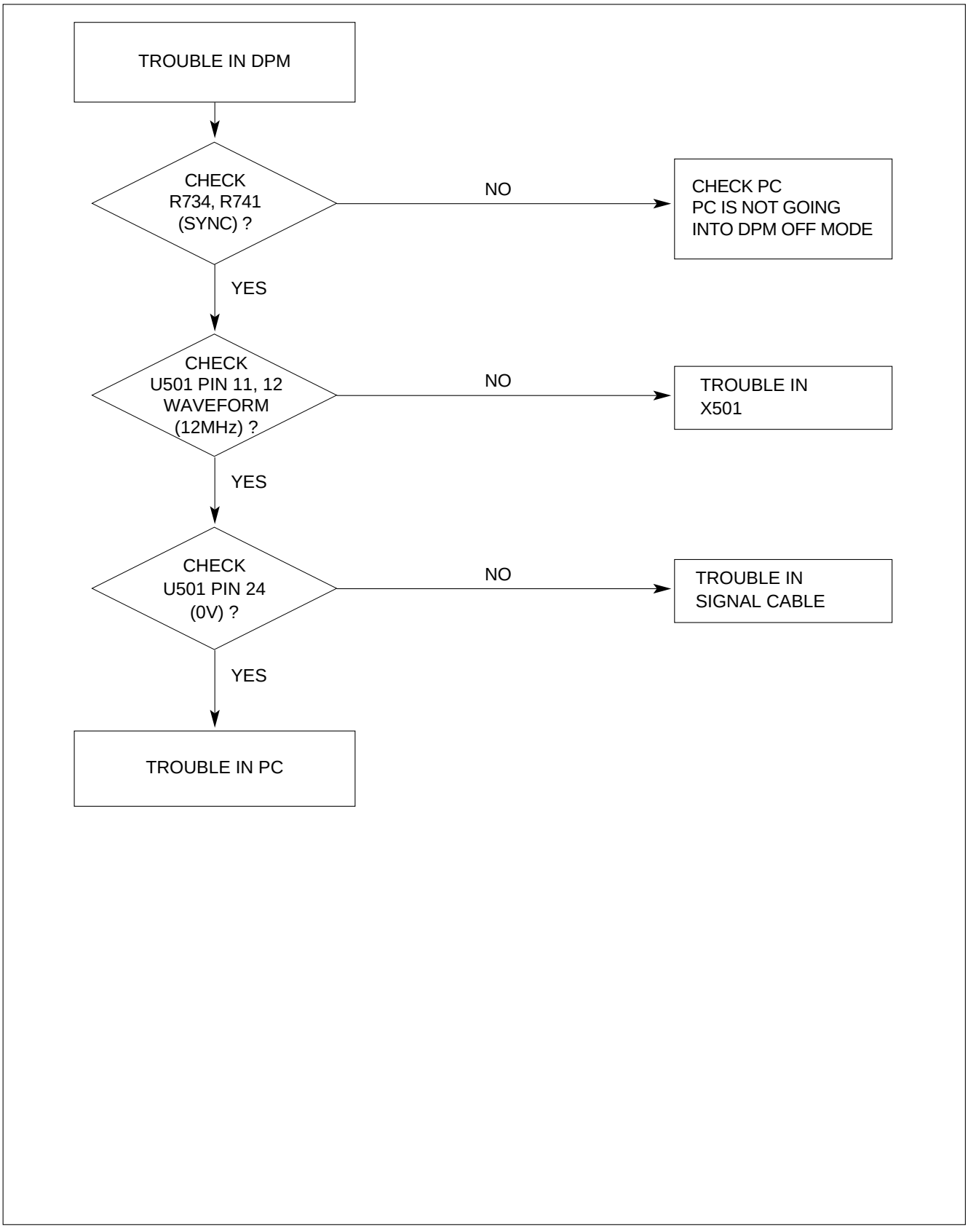
2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



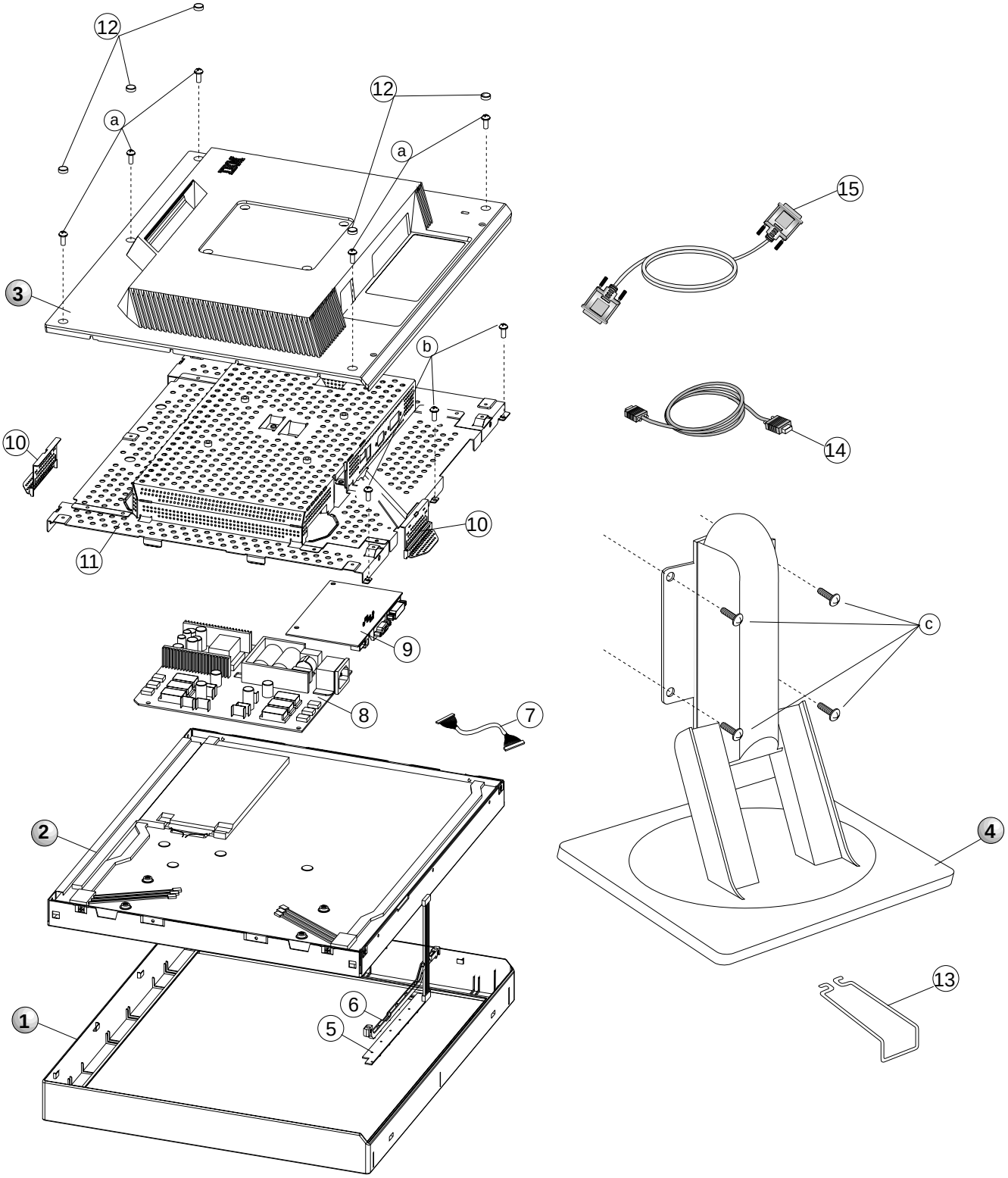
3. NO RASTER (OSD IS NOT DISPLAYED) – MST9151



4. TROUBLE IN DPM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL102A	CABINET ASSEMBLY, LL180PL IBM L087 THINKVISION
2	6304FLP093A	LCD(LIQUID CRYSTAL DISPLAY), LM181E06-D4 LG PHILPS TFT COLOR TCO03,SXGA LVDS SMM
3	3809TKL074A	BACK COVER ASSEMBLY, LL180PL L070 THINKVISION
4	3043TKK050Y	TILT SWIVEL ASSEMBLY, LL180PL . STEALTH BLACK
5	6871TST458A	PWB(PCB) ASSEMBLY, SUB, L180P CONTROL TOTAL IBM AALDG
6	4810TKK221B	BRACKET, CONTROL PCB(LL180PL)
7	6631T11016D	CONNECTOR ASSEMBLY, 30P H-H 200MM UL20276 18" STD LG808H
8	6871TPT261B	PWB(PCB) ASSEMBLY, POWER, L180P POWER TOTAL SSE IBM18.1" FOR LPL
9	6871TMT492A	PWB(PCB) ASSEMBLY, MAIN, L180P ALRDG IBM CL-42 TOTAL
10	4814TKK264A	SHIELD, INVERTER LL180PL SHIELD
11	4951TKK162A	METAL ASSEMBLY, FRAME MAIN ASSY LL180PL
12	5040TKM064A	SCREW COVER(LL180PL)
13	4970TKK007A	SPRING, CLIP NO DIM FOR STAND CLIP(LI)
14	6850TD9001D	CABLE, D-SUB, UL 2990-9C(7.5) DT 3000MM STEALTH BK IBM DM
15	6866TDV004E	CABLE, DVI, UL20276 DT 3000MM STEALTH BK LI562G DM
a	1SZZTER001G	SCREW, DRAWING, D3.0 L6.0 MSWR/BK .
b	332-113S	SCREW, DRAWING D3.0 L12.0 MSWR/BK
C	1MCC0402416	SCREW MACHINE,COUNTER SUNK HEAD

REPLACEMENT PARTS LIST

CAUTION: BEFORE REPLACING ANY OF THESE COMPONENTS,
READ CAREFULLY THE **SAFETY PRECAUTIONS** IN THIS MANUAL.
* NOTE : **S** SAFETY Mark ⚠
AL ALTERNATIVE PARTS

DATE: 2003. 12. 12.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		MAIN BOARD		
		CAPACITORS		
		C204	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C205	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C206	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C207	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C208	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C209	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C210	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C214	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C215	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C216	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C217	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C218	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C219	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C220	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C221	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C222	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C223	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C224	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C225	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C226	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C227	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C230	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C231	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C232	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C233	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C240	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C244	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C245	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C246	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C247	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C248	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C249	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C250	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C501	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C502	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C503	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C505	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C506	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C507	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C508	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C509	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C512	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C513	0CC030CK01A	3PF 1608 50V 0.25 PF R/TP NP0
		C514	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C516	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C530	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C703	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C704	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C705	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C706	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C707	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C708	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C709	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C710	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C711	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C712	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C713	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C714	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C730	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C731	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C732	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C734	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C735	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C737	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C738	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C739	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C740	0CE477EH618	470UF KMG 25V M FL TP 5
		C741	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C742	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C743	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C744	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C750	0CE477EH618	470UF KMG 25V M FL TP 5
		C751	0CE477EH618	470UF KMG 25V M FL TP 5
		C752	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C760	0CE107EF610	100UF KMG,RD 16V 20% FL BULK
		C801	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C802	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C803	0CK105CD56A	1UF 1608 10V 10% R/TP X7R
		C804	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C817	0CE107EF610	100UF KMG,RD 16V 20% FL BULK
		C818	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C819	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C820	0CE107EF610	100UF KMG,RD 16V 20% FL BULK
		C821	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C822	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C828	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C829	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y5
		C831	0CE107EF610	100UF KMG,RD 16V 20% FL BULK
		C832	0CE107EF610	100UF KMG,RD 16V 20% FL BULK
		DIODEs		
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D707	0DD184009AA	KDS184 TP KEC - 85V - - - 300
		D708	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D709	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D710	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D711	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D712	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D713	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D714	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D715	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D716	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D717	0DS226009AA	KDS226 TP KEC SOT-23 80V 300

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		D718	0DS226009AA	KDS226 TP KEC SOT-23 80V 300
		D719	0DD184009AA	KDS184 TP KEC - 85V - - - 300
		ZD701	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD702	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD703	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD704	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD705	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD706	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD707	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD708	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD709	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD711	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD712	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD713	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD714	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD715	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
	ICs			
		U201	0IPRPM3010B	MST9151B DUAL DVI -I PARALLEL
		U501	0IZZTSZ320A	MYSON 42P BK OTP LL180PL
		U502	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/T
		U503	0IPH740800H	74F08D 14P,SOIC TP QUAD 2-INP
		U702	0ICS240213A	CAT24WC02J-TE13 8P SOP TP 2K
		U703	0ICS240213A	CAT24WC02J-TE13 8P SOP TP 2K
		U802	0TFVI80036A	SI3861DV VISHAY R/TP TSOP-6 4
		U803	0IPMGNS001D	LM1117MPX-2.5 NATIONAL SEMICO
		U804	0IPMGNS001E	LM1117MPX-3.3 NATIONAL SEMICO
	COILs & CORES			
		L750	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L751	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
	TRANSISTOR			
		Q502	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q503	0IKE704200H	KIA7042AP TO-92 TP 4.2 VOLT.
		Q504	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q505	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q506	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q507	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q508	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q509	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q701	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q702	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q703	0TR390609FA	KST3906-MTF TP SAMSUNG SOT23
		Q704	0TR390609FA	KST3906-MTF TP SAMSUNG SOT23
		Q705	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q706	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
		Q707	0TR390409AE	FAIRCHILD KST3904(LGEMTF) TP
	RESISTORs			
		R201	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R202	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R203	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R205	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R207	0RJ3900D677	390 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R209	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R210	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R211	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R212	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R213	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R214	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R215	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R216	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R217	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R220	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R240	0RJ0682D677	68 OHM 1/10 W 5% 1608 R/TP
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R502	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R503	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R504	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R505	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R506	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R507	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R508	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R509	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R510	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R511	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R512	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R514	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R515	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R517	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R518	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R519	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R521	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R522	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R523	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R524	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R525	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R530	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R532	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R533	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R534	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R537	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R541	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R542	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R543	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R544	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R545	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R547	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R548	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R551	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R552	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R553	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R554	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R555	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R556	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R557	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R558	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R559	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R561	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R563	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R564	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R565	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R580	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R581	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R590	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R591	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R592	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R593	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R595	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R596	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R705	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R707	0RJ0272D677	27 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R716	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R717	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R722	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R723	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R724	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R725	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R726	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R727	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R728	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R729	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R730	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R731	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R732	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R733	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R734	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R735	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R740	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R741	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R744	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R745	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R747	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R748	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R750	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R751	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R753	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R754	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R755	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R756	0RJ0272D677	27 OHM 1/10 W 5% 1608 R/TP
		R757	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R758	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R759	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R761	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R762	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R763	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R764	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R765	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R766	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R767	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R768	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R769	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R770	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R771	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R772	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R773	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R774	0RJ0122D677	12 OHM 1/10 W 5% 1608 R/TP
		R775	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R803	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R811	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/TP

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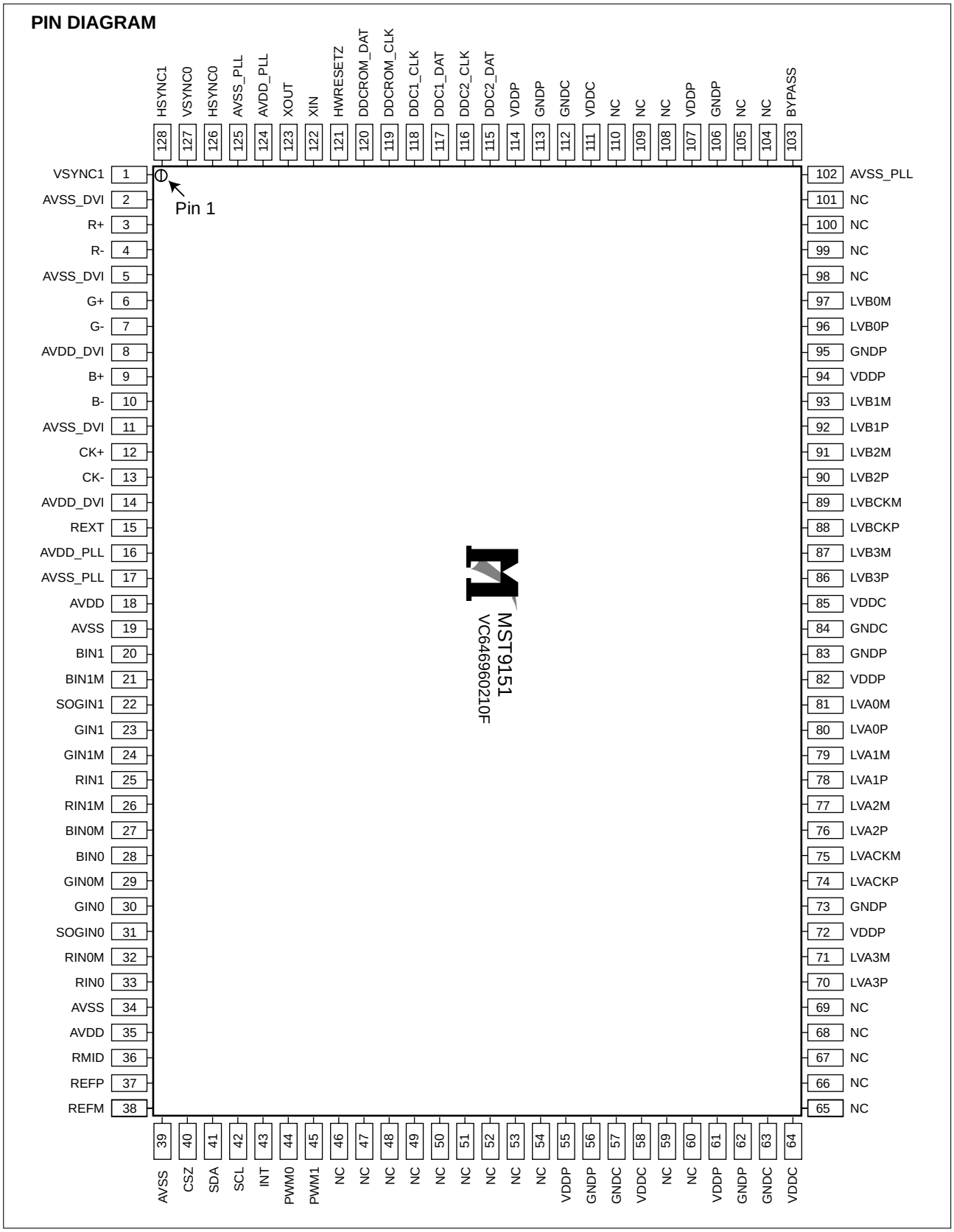
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R812	0RJ5600D677	560 OHM 1/10 W 5% 1608 R/TP
		R814	0RJ5600D677	560 OHM 1/10 W 5% 1608 R/TP
		R815	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R840	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R841	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R842	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R843	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R844	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R845	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R846	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R847	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R848	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R849	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		OTHERs		
		J708	6612TAH003A	DJ-023 KSD R/ANGLE LB563B
		X501	6212AA2004A	HC-49U TXC 12.0MHZ +/- 30 PPM
		CONTROL BOARD		
		LED1	0DLRH0058AA	ROHM SML-521MYWT86 R/TP GREEN
		R1	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R2	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R3	0RJ8200D677	820 OHM 1/10 W 5% 1608 R/TP
		R4	0RJ8200D677	820 OHM 1/10 W 5% 1608 R/TP
		R5	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		SW1	6600TR1002A	SKQGACE010 J-ALPS NON 12V 50M
		SW2	6600TR1002A	SKQGACE010 J-ALPS NON 12V 50M
		SW3	6600TR1002A	SKQGACE010 J-ALPS NON 12V 50M
		SW4	6600TR1002A	SKQGACE010 J-ALPS NON 12V 50M
		SW5	6600TR1002A	SKQGACE010 J-ALPS NON 12V 50M
		ZD1	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2
		ZD2	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323 2

PIN CONFIGURATION

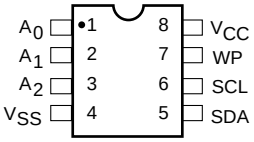
MST9151 DUAL MSTAR 128P

PIN DIAGRAM

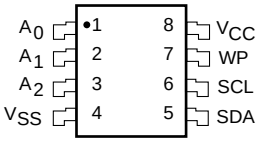


CAT24WC08J-TE13 8P

DIP Package(p)



SOIX Package(J)



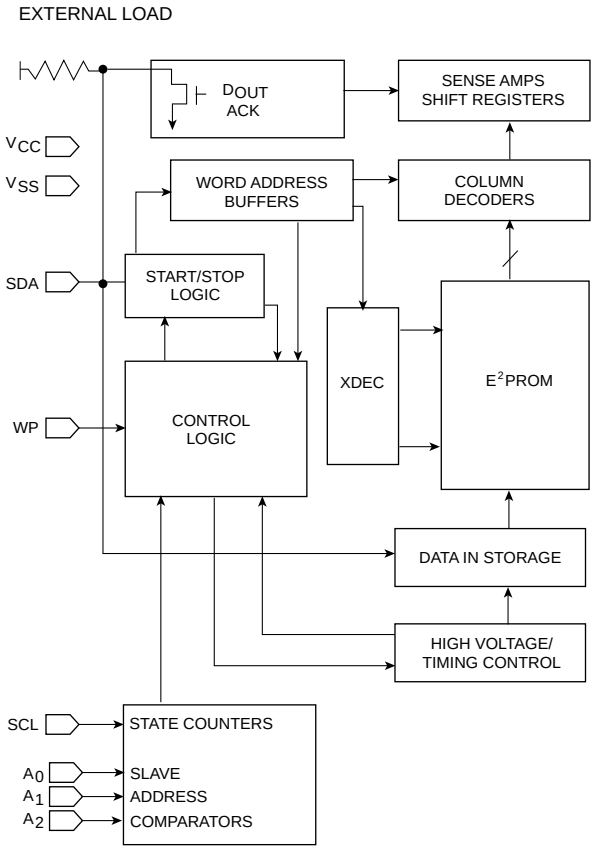
TSSOP Package(U)

PIN CONFIGURATION

PIN FUNCTION

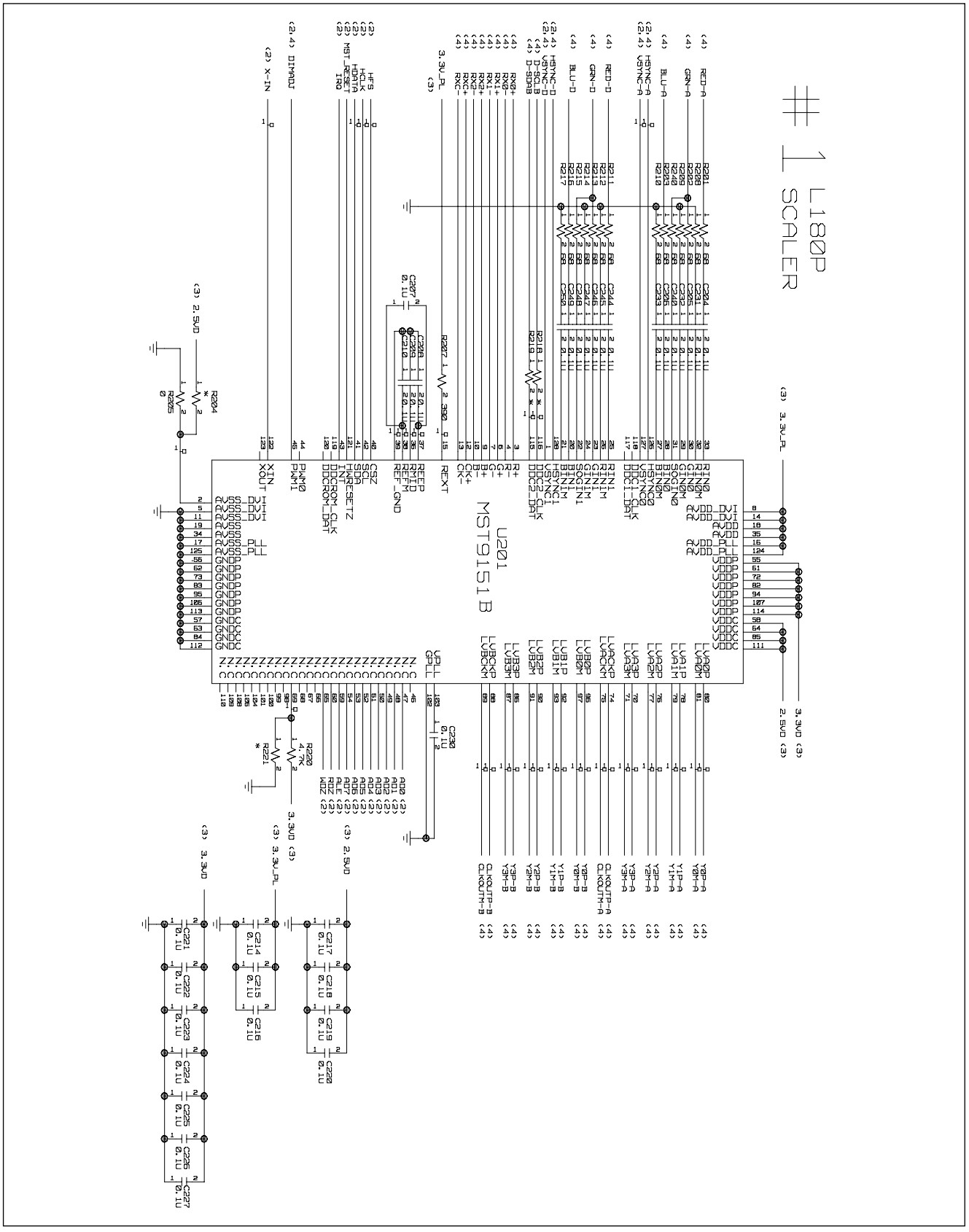
Pin Name	Function
A0, A1, A2	Device Adress Inputs
SDA	Serial Data/Address
SCL	Serial Clock
WP	Write Protect
Vcc	+1.8V to + 6.0V power Supply
Vss	Ground

BLOCK DIAGRAM

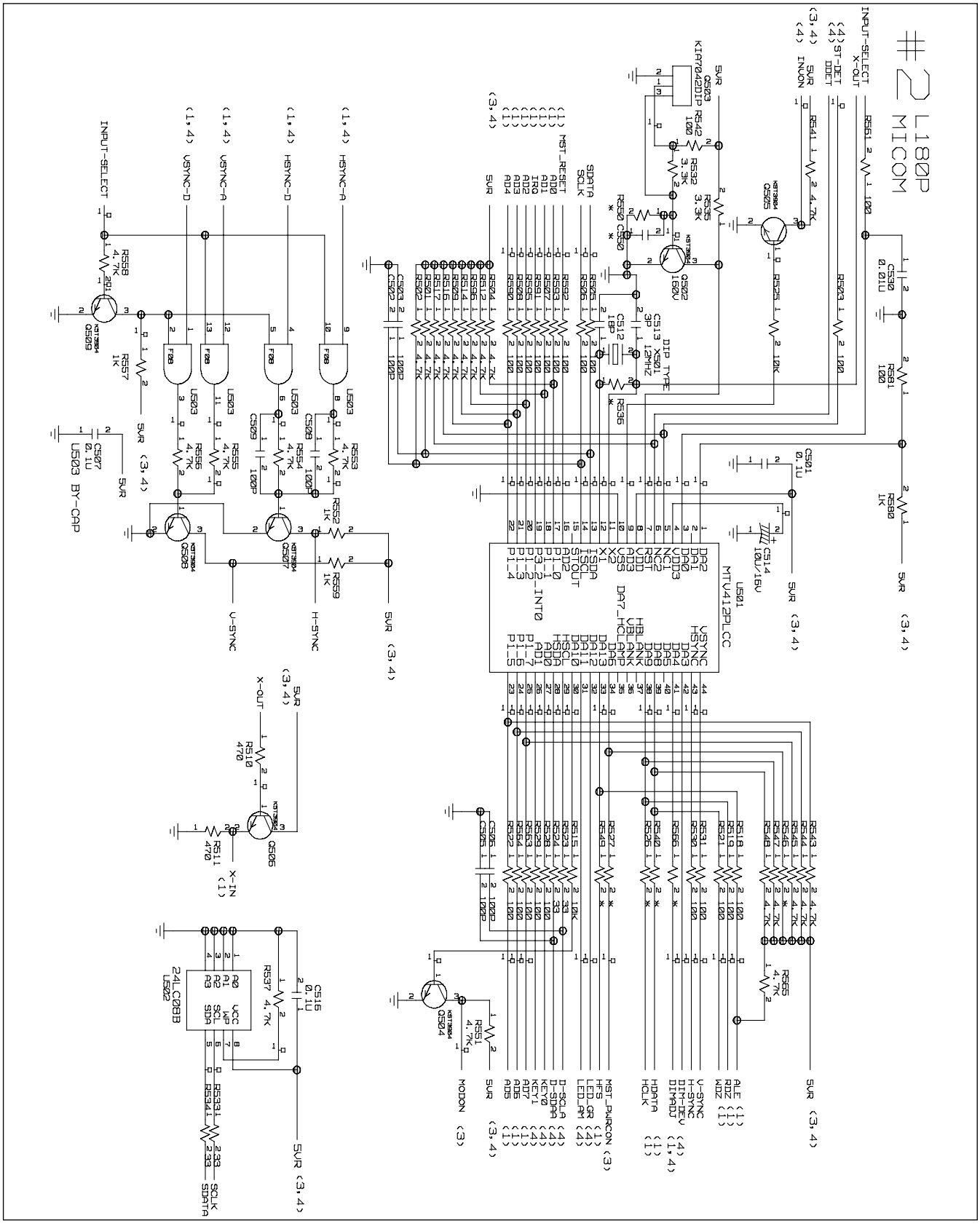


SCHEMATIC DIAGRAM

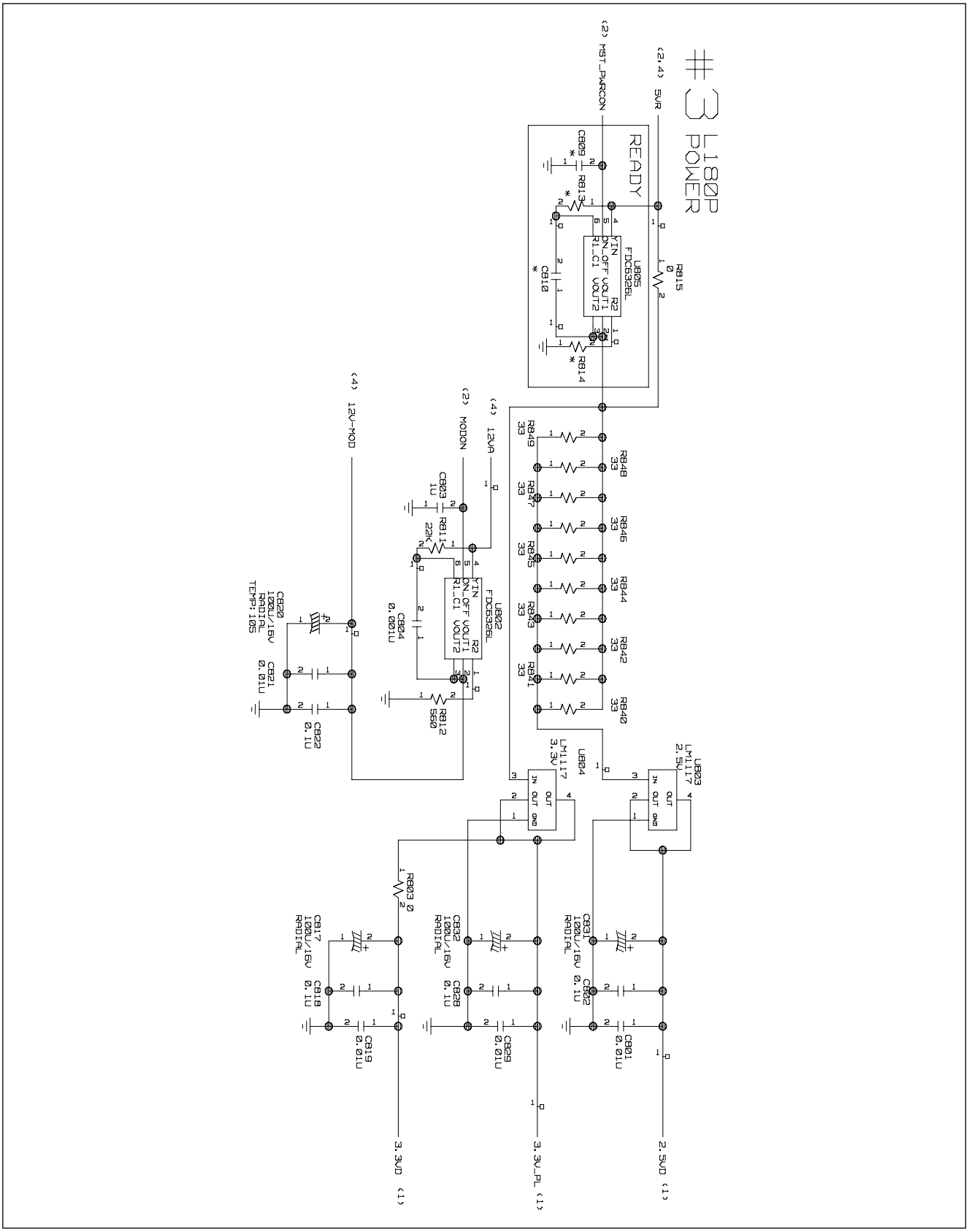
1. SCALER



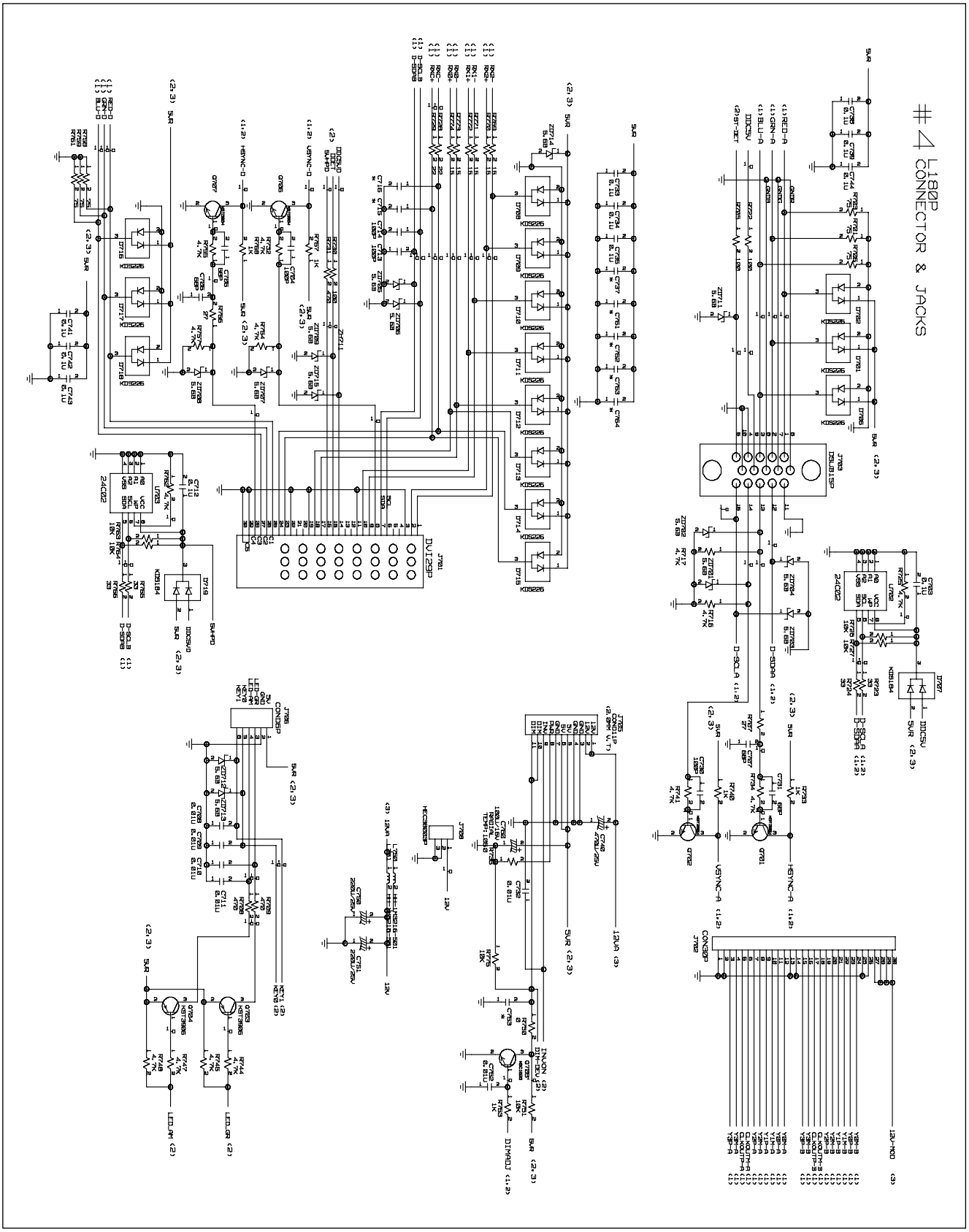
2. MICOM


#2 L180P MICOM
MTV412PLCC
U501
24LC08B
U502
U503 BY-CAP
INPUT-SELECT
X-OUT
X-IN
H-SYNC
V-SYNC
SDATA
SCLK
IRQ
MODON
HDATA
HCLK
V-SYNC
H-SYNC
DIM-DEV
DIMADJ
ALE
RDZ
MST-PWRCON
HFS
LED_GR
LED_AM
D-SDA
D-SCLK
KEY0
KEY1
SCLK
SDATA

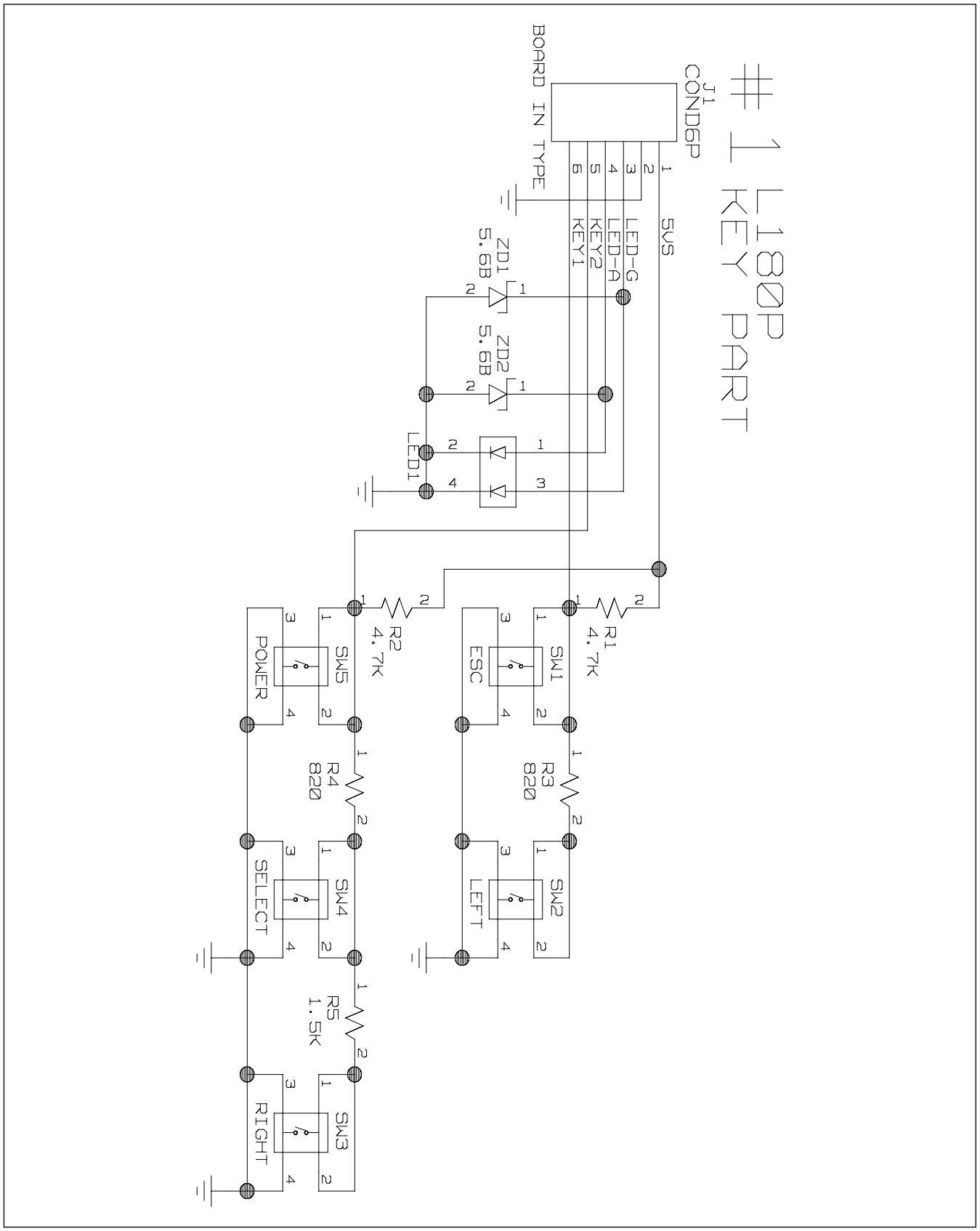
3. POWER


#3 L180P POWER
READY
(2) MST_PWRCON
(2,4) 5VR
(4) 12V-MOD
(2) MODON
(4) 12VA
U805 FDC6326L
U802 FDC6326L
U804 LM1117 3.3V
U803 LM1117 2.5V
3.3VD (1)
3.3V_PL (1)
2.5VD (1)

4. CONNECTOR & JACKS



5. CONTROL KEY



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